Dell Vostro V131 Owner's Manual

Regulatory Model P18S
Regulatory Type P18S001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Working on Your Computer 1

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have performed the steps in Working on Your Computer.
- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see *Turning Off Your Computer*).
3. If the computer is connected to a docking device (docked) such as the optional Media Base or Battery Slice, undock it.

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.

NOTE: To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the main battery.
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver

- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe
- Flash BIOS update program CD

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:

   - In Windows Vista :

     Click **Start** , then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.

   - In Windows XP:
     Click **Start** → **Turn Off Computer** → **Turn Off** . The computer turns off after the operating system shutdown process is complete.
2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

3. Replace the battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

Removing The Secure Digital (SD) Card

2

1. Follow the procedures in *Before Working On Your Computer.*
2. Press in on the SD card to release it from the computer.

3. Grasp the SD card and pull out to release from the computer.

Installing The Secure Digital (SD) Card

1. Slide the SD card into its slot and press until it clicks into place.
2. Follow the procedures in *After working inside your computer*.

Removing The Battery

3

1. Follow the procedures in *Before Working On Your Computer.*
2. Remove the *Secure Digital (SD) Card.*
3. Slide the release latches to unlock the battery.

4. Remove the battery from the computer.

Installing The Battery

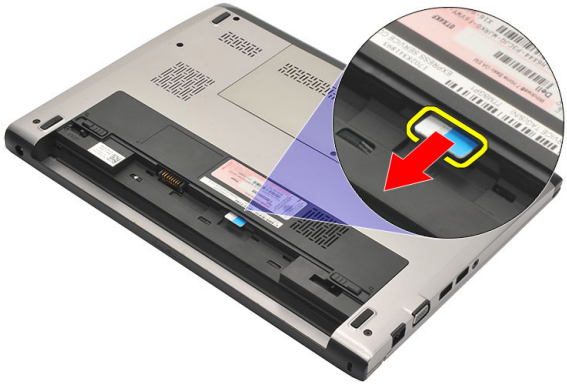
1. Insert the battery into its compartment.
2. Slide the battery into its slot until it clicks into place.
3. Install the *Secure Digital (SD) Card*.
4. Follow the procedures in *After Working Inside Your Computer*.

Removing The Subscriber Identity Module (SIM) Card

4

1. Follow the procedures in *Before Working On Your Computer.*
2. Remove the *battery*.
3. Press in on the SIM card to release it from the computer.

4. Grasp the SIM card and pull out to release from the computer.



Installing The Subscriber Identity Module (SIM) Card

1. Insert the SIM card into the slot.
2. Install the *battery*.
3. Follow the procedures in *After Working Inside Your Computer.*

Removing The Keyboard

5

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Pry the keyboard using a flat-head screw driver to remove the keyboard retainers that secure keyboard to the computer.

4. Flip the keyboard over and lay it on the palm rest.

5. Lift the clip to release the keyboard cable and disconnect it from the system board.

6. Lift the keyboard up and away from the computer.

Installing The Keyboard

1. Connect the keyboard cable to the system board.
2. Insert the keyboard in its compartment.
3. Press down until the keyboard clicks into place in the computer.
4. Install the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

Removing The Base Cover

6

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the screw that secures the base cover to the computer.

4. Slide the base cover towards the back of the computer. Lift it up and away from the computer.

Installing The Base Cover

1. Align the edge of the base cover on the computer and slide it on the computer.
2. Tighten the screw to secure the base cover to the computer.
3. Install the *battery*
4. Follow the procedures in *After Working Inside Your Computer*.

Removing The Memory

7

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Pry the retention clips away from the memory module till the memory module pops up.

5. Remove the memory module from the computer.

Installing The Memory

1. Insert the memory module into the memory socket.
2. Press the clips to secure the memory module to the system board.
3. Install the *base cover*.
4. Install the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

Removing The Hard Drive

8

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the screw that secures the hard drive in place.

5. Slide the hard drive module to the left.

6. Carefully pry up and remove the hard drive from the computer.

7. Remove the screws which secure the hard-drive bracket to the hard drive. Separate the hard drive bracket from the hard drive.

Installing The Hard Drive

1. Align the hard-drive bracket with the hard drive.
2. Tighten the screws on the hard drive to secure the hard drive bracket to the hard drive.
3. Slide the hard drive into the bay on the system board.
4. Replace and tighten the screw to secure the hard drive to the computer.
5. Install the *base cover*.
6. Install the *battery*.
7. Follow the procedures in *After Working Inside Your Computer*.

Removing The Palm Rest

9

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Removing the *hard drive*.
6. Remove the screws from the bottom of the computer, that secures the palm rest.

7. Remove the screws on the palm rest.

8. Disconnect the following cables:
   - fingerprint reader (1)

- media board (2)
- touch pad (3)

9. Using a plastic scribe, gently pry the sides of the palm rest and remove it from the computer.

Installing The Palm Rest

1. Align the palm rest to its original position in the computer and gently snap it into place.
2. Connect the following cables to the palm rest:
   - fingerprint reader (1)
   - media board (2)

- touch pad (3)

3. Tighten the screws on the palm rest to secure the palm rest in place.
4. Tighten the screws at the bottom base of the computer that secures the palm rest.
5. Install the *hard drive*.
6. Install the *keyboard*.
7. Install the *base cover*.
8. Install the *battery*.
9. Follow the procedures in *After Working Inside Your Computer*.

Removing The Wireless Local Area Network (WLAN) Card

10

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *hard drive*.
6. Remove the *palm rest*.
7. Disconnect the antenna cables from the WLAN card.

8. Remove the screw that secures the WLAN card to the system board.

9. Remove the WLAN card.

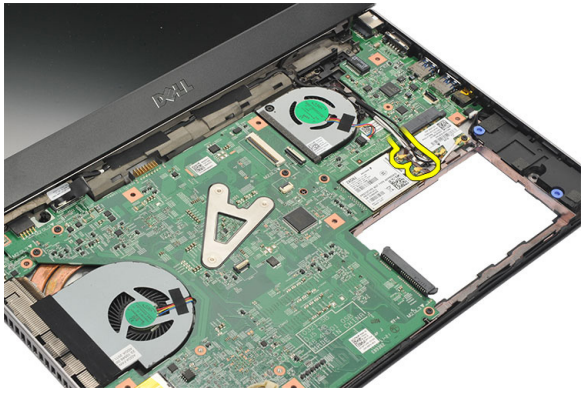
Installing The Wireless Local Area Network (WLAN) Card

1. Insert the WLAN card at a 45 degree angle into its slot.
2. Connect the antenna cables to their respective connectors marked on the WLAN card.
3. Tighten the screws to secure the WLAN card in place.
4. Install the *palm rest*.
5. Install the *hard drive*.
6. Install the *keyboard*.
7. Install the *base cover*.
8. Install the *battery*.
9. Follow the procedures in *After Working Inside Your Computer*.

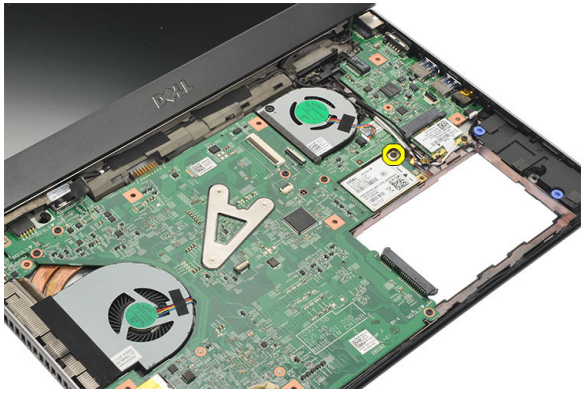
Removing The Wireless Wide Area Network (WWAN) Card

11

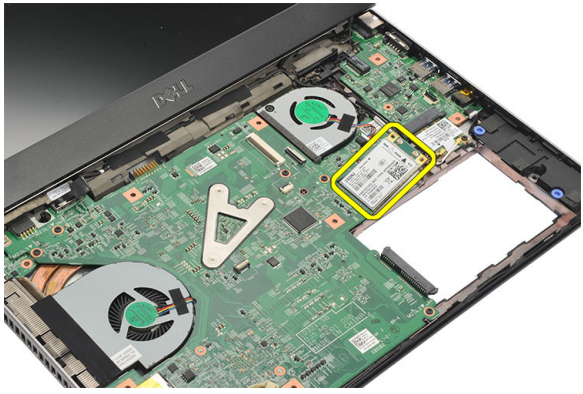
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *hard drive*.
6. Remove the *palm rest*.
7. Disconnect the antenna cables from the WWAN card.



8. Remove the screw that secures the WWAN card to the system board.



9. Remove the WWAN card.



Installing The Wireless Wide Area Network (WWAN)

1. Insert the WWAN card at a 45 degree angle into its slot.
2. Connect the antenna cables to their respective connectors.
3. Tighten the screw to secure the WWAN card in place.
4. Install the *palm rest*.
5. Install the *hard drive*.
6. Install the *keyboard*.
7. Install the *base cover*.
8. Install the *battery*.
9. Follow the procedures in *After Working Inside Your Computer*.

Removing The Display Assembly 12

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *hard drive*.
6. Remove the *palm rest*.
7. Remove the screws from the computer base that secures the display assembly.

8. Turn over the computer. Disconnect the WLAN and WWAN cables and release the cables from the routing channel on the bottom base chassis.

9. Disconnect the display cable from the computer and release it from the routing channel.

10. Remove the screw that secures the right hinge.

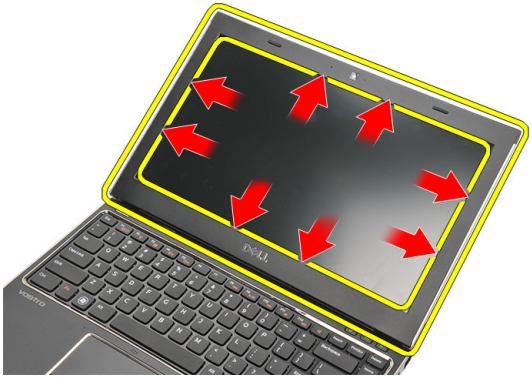
11. Carefully lift up the display assembly from the computer base.

Installing The Display Assembly

1. Align the display assembly to the computer base.
2. Tighten the screw to secure the right hinge in place.
3. Tighten the screws to secure the display assembly to the bottom base chassis.
4. Connect the display cable to the connector on the system board.
5. Route the WLAN and WWAN antenna cables along their routing channels and connect them to their respective modules.
6. Install the *palm rest*.
7. Install the *hard drive*.
8. Install the *keyboard*.
9. Install the *base cover*.
10. Install the *battery*.
11. Follow the procedures in *After Working Inside Your Computer*.

Removing The Display Bezel 13

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Gently pry the display bezel inside out to release it from the display assembly.



4. Lift the display bezel and remove it from the display assembly.

Installing Display Bezel

1. Align the display bezel with the display assembly.
2. Starting from the top corner, press on the display bezel and work around the entire bezel until it snaps onto the display assembly.
3. Install the *battery*.
4. Follow the procedures in *After Working Inside Your Computer*.

Removing The Display Panel 14

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *palm rest*.
6. Remove the *Wireless Local Area Network (WLAN) card*.
7. Remove the *Wireless Wide Area Network (WWAN) card*.
8. Remove the *display assembly*.
9. Remove the *display bezel*.
10. Remove the screws that secure the display panel to the display assembly.

11. Rotate the display panel over to the keyboard.

12. Peel off the adhesive tape that secures the low-voltage differential signalling (LVDS) connection to the display panel.

13. Disconnect the LVDS cable from the display panel.

14. Remove the display panel from the computer.

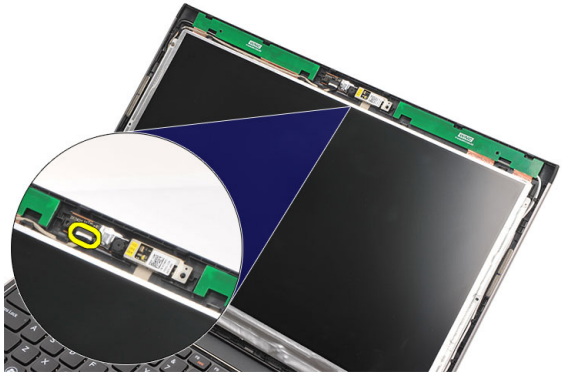
Installing the Display Panel

1. Connect the display cable to the display panel and attach the adhesive tape to secure the connection.
2. Connect the low-voltage differential signalling (LVDS) cable to the display panel.
3. Replace the adhesive tape that secures the LVDS connection to the display panel.
4. Align the display panel in its original position on the display assembly.
5. Tighten the screws to secure the display panel to the display assembly.
6. Install the *display bezel*.
7. Install the *display assembly*.
8. Install the *Wireless Wide Area Network (WWAN) card*.
9. Install the *Wireless Local Area Network (WLAN) card*.
10. Install the *palm rest*.
11. Install the *keyboard*.
12. Install the *base cover*.
13. Install the *battery*.
14. Follow the procedures in *After Working Inside Your Computer*.

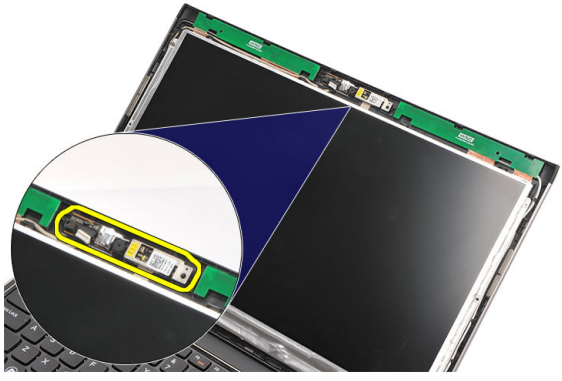
Removing The Camera

15

1. Follow the procedures in *Before Working on Your Computer*.
2. Remove the *battery*.
3. Remove the *display bezel*.
4. Disconnect the camera cable from the camera module.



5. Carefully peel off the camera from the camera module.



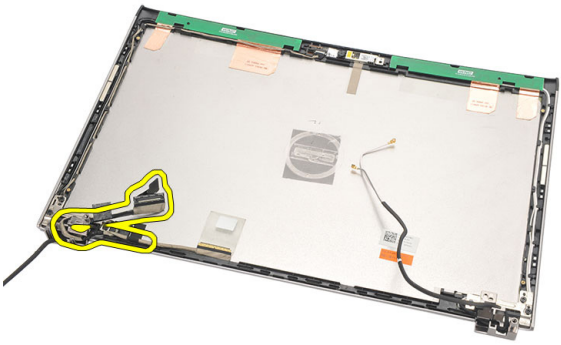
Installing The Camera

1. Align the camera on the camera module.
2. Attach the adhesive tape to secure the camera to its position.
3. Connect the camera cable to the camera module.
4. Install the *display bezel*.
5. Install the *battery*.
6. Follow the procedures in *After working inside your computer*.

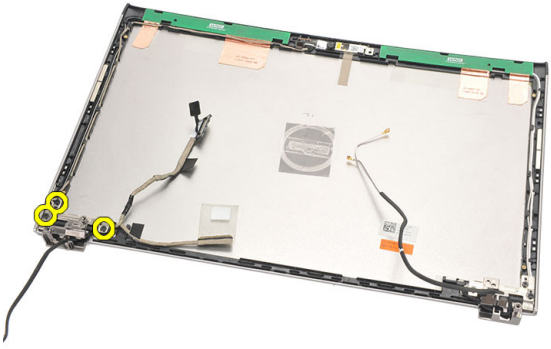
Removing The Display Hinges 16

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *hard drive*.
6. Remove the *palm rest*.
7. Remove the *display panel*.
8. Remove the *display assembly*.
9. Remove the *display bezel*.
10. Remove the wireless antenna cables from the left display hinges.

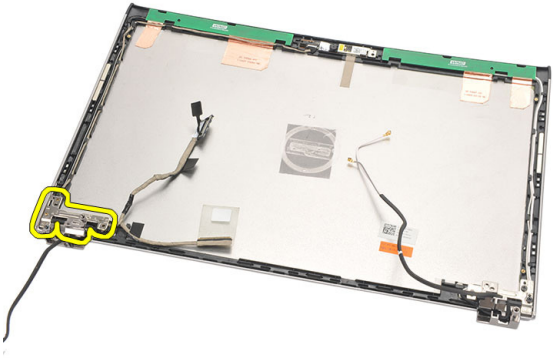
11. Remove the low-voltage differential signalling (LVDS) cable from the left display hinge.



12. Remove the screws that secure the left display hinge to the display back cover.



13. Remove the left display hinge from the display.



NOTE: Please follow the same procedure to remove the right display hinge.

Installing The Display Hinges

1. Align the display hinge in the appropriate position.
2. Tighten the screws to secure the left display hinge.
3. Connect the low-voltage differential signalling (LVDS) and wireless cables on the left display hinge.
4. Install the *display bezel*.
5. Install the *display panel*.
6. Install the *display assembly*.
7. Install the *palm rest*.
8. Install the *hard drive*.
9. Install the *keyboard*.
10. Install the *base cover*.
11. Install the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

NOTE: Please follow the same procedure to install the right display hinge.

Removing The Thermal Fan

17

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *hard drive*.
6. Remove the *palm rest*.
7. Disconnect the thermal fan cable from the input/output board.

8. Remove the screws that secure the thermal fan to the computer.

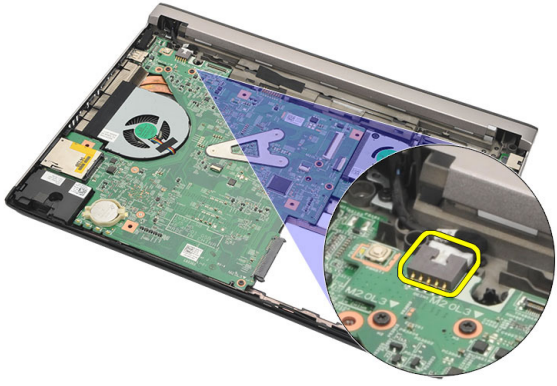
9. Lift up and remove the thermal fan from the computer.

Installing The Thermal Fan

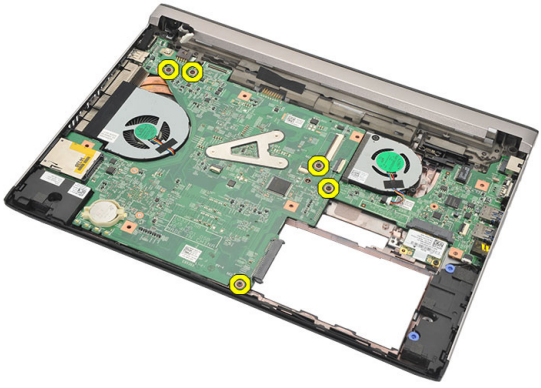
1. Insert the thermal fan into its slot.
2. Tighten the screws to secure the thermal fan.
3. Install the *palm rest*.
4. Install the *hard drive*.
5. Install the *keyboard*.
6. Install the *base cover*.
7. Install the *battery*.
8. Follow the procedures in *After Working Inside Your Computer*.

Removing The System Board 18

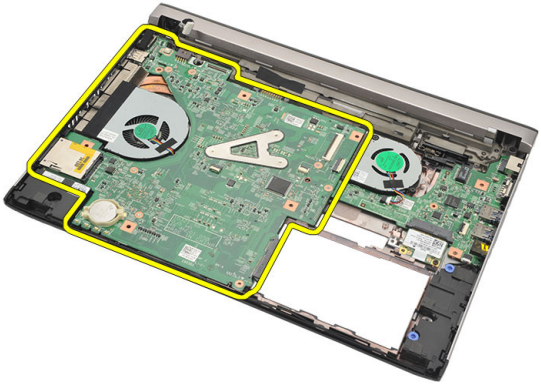
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Subscriber Identity Module (SIM) card*.
4. Remove the *Secure Digital (SD) Card*.
5. Remove the *base cover*.
6. Remove the *keyboard*.
7. Remove the *hard drive*.
8. Remove the *memory*.
9. Remove the *palm rest*.
10. Remove the *Wireless Wide Area Network (WWAN) card*.
11. Remove the *Wireless Local Area Network (WLAN) card*.
12. Remove the *display assembly*.
13. Disconnect the DC-in cable from the system board.



14. Remove the screws that secure the system board to the chassis.



15. Lift up and remove the system board from the chassis.

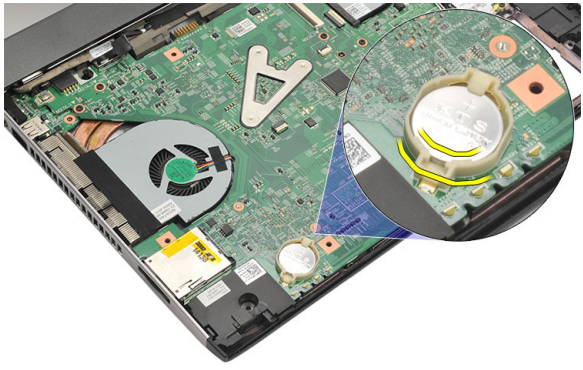


Installing The System Board

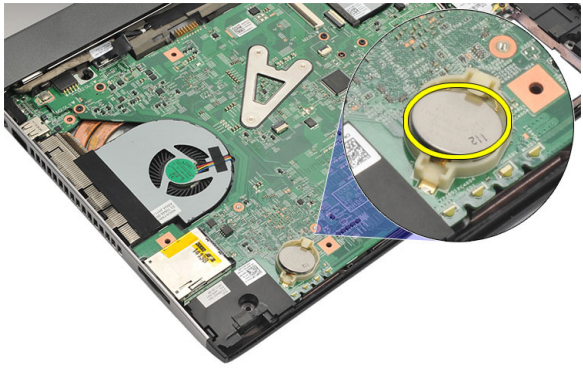
1. Connect the DC-in cable to the system board.
2. Insert the system board into its slot.
3. Tighten the screws to secure the system board to the chassis.
4. Install the *display assembly*.
5. Install the *Wireless Wide Area Network (WWAN) card*.
6. Install the *Wireless Local Area Network (WLAN) card*.
7. Install the *palm rest*.
8. Install the *memory*.
9. Install the *hard drive*.
10. Install the *keyboard*.
11. Install the *base cover*.
12. Install the *Secure Digital (SD) card*.
13. Install the *Subscriber Identity Module (SIM) card*.
14. Install the *battery*.
15. Follow the procedures in *After Working Inside Your Computer*.

Removing The Coin-Cell Battery 19

1. Follow the procedures in *Before Working on Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *hard drive*.
6. Remove the *palm rest*.
7. Use a plastic scribe to pry out the coin-cell battery.



8. Remove the coin-cell battery from the computer.



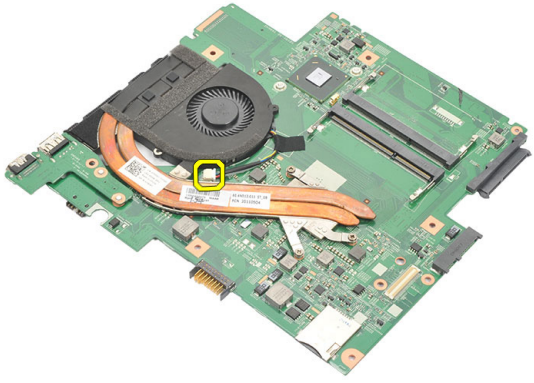
Installing The Coin-Cell Battery

1. Insert the coin-cell battery into its compartment.
2. Install the *palm rest*.
3. Install the *hard drive*.
4. Install the *keyboard*.
5. Install the *base cover*.
6. Install the *battery*.
7. Follow the procedures in *After Working Inside Your Computer*.

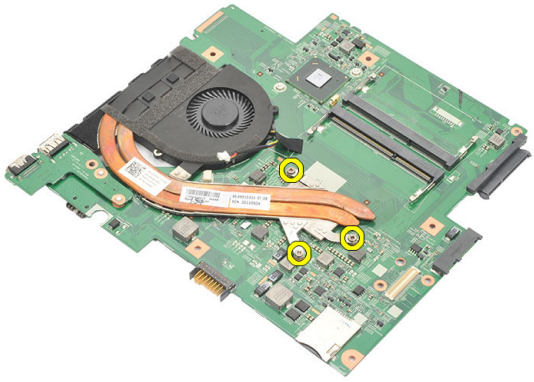
Removing The Heat Sink

20

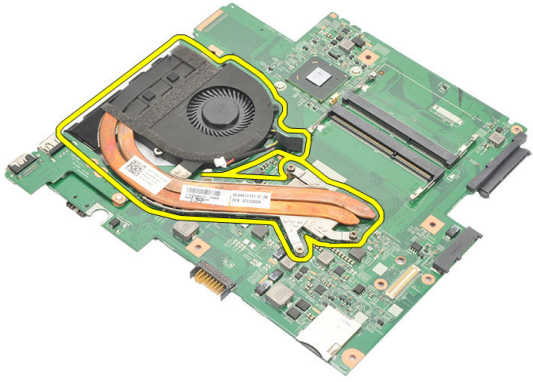
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Subscriber Identity Module (SIM) card*.
4. Remove the *Secure Digital (SD) card*.
5. Remove the *base cover*.
6. Remove the *keyboard*.
7. Remove the *hard drive*.
8. Remove the *memory*.
9. Remove the *palm rest*.
10. Remove the *Wireless Wide Area Network (WWAN) card*.
11. Remove the *Wireless Local Area Network (WLAN) card*.
12. Remove the *display assembly*.
13. Remove the *system board*.
14. Disconnect the heat sink cable from the system board.



15. Loosen the captive screws that secure the heat sink to the system board.



16. Lift up and remove the heat sink from the system board.



Installing The Heat Sink

1. Insert the heat sink into its compartment.
2. Tighten the captive screws to secure the heat sink in place.
3. Connect the fan cable to the system board.
4. Install the *system board*.
5. Install the *display assembly*.
6. Install the *Wireless Wide Area Network (WWAN) card*.
7. Install the *Wireless Local Area Network (WLAN) card*.
8. Install the *palm rest*.
9. Install the *memory*.
10. Install the *hard drive*.
11. Install the *keyboard*.
12. Install the *base cover*.
13. Install the *Secure Digital (SD) card*.
14. Install the *Subscriber Identity Module (SIM) card*.
15. Install the *battery*.
16. Follow the procedures in *After Working Inside Your Computer*.

Removing The HDMI Board

21

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Subscriber Identity Module (SIM) card*.
4. Remove the *Secure Digital (SD) card*.
5. Remove the *base cover*.
6. Remove the *keyboard*.
7. Remove the *hard drive*.
8. Remove the *memory*.
9. Remove the *palm rest*.
10. Remove the *Wireless Wide Area Network (WWAN) card*.
11. Remove the *Wireless Local Area Network (WLAN)*.
12. Remove the *display assembly*.
13. Remove the *system board*.
14. Remove the High-Definition Multimedia Interface (HDMI) board from the chassis.

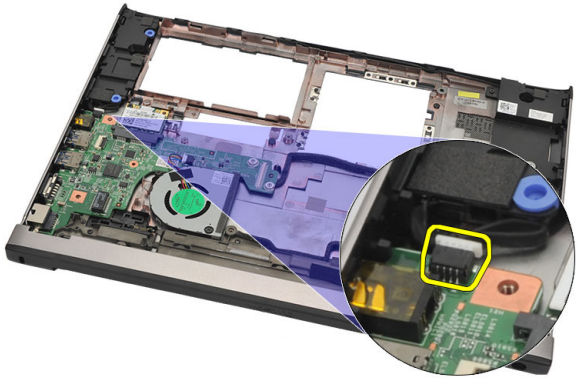
Installing The High-Definition Multimedia Interface (HDMI) Board

1. Replace the HDMI board into its compartment.
2. Install the *system board*.
3. Install the *display assembly*.
4. Install the *Wireless Wide Area Network (WWAN) card*.
5. Install the *Wireless Local Area Network (WLAN) card*.
6. Install the *palm rest*.
7. Install the *memory*.
8. Install the *hard drive*.
9. Install the *keyboard*.
10. Install the *base cover*.
11. Install the *Secure Digital (SD) card*.
12. Install the *Subscriber Identity Module (SIM) card*.
13. Install the *battery*.
14. Follow the procedures in *After Working Inside Your Computer*.

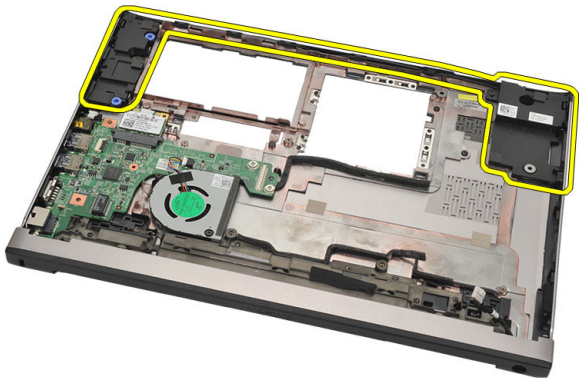
Removing The Speakers

22

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Subscriber Identity Module (SIM) card*.
4. Remove the *Secure Digital (SD) card*.
5. Remove the *base cover*.
6. Remove the *keyboard*.
7. Remove the *hard drive*.
8. Remove the *memory*.
9. Remove the *palm rest*.
10. Remove the *Wireless Wide Area Network (WWAN) card*.
11. Remove the *Wireless Local Area Network (WLAN) card*.
12. Remove the *display assembly*.
13. Remove the *system board*.
14. Disconnect the speaker cable from the Input/Output (I/O) board.



15. Unthread the speaker cable from its holder and remove the speakers from the computer.



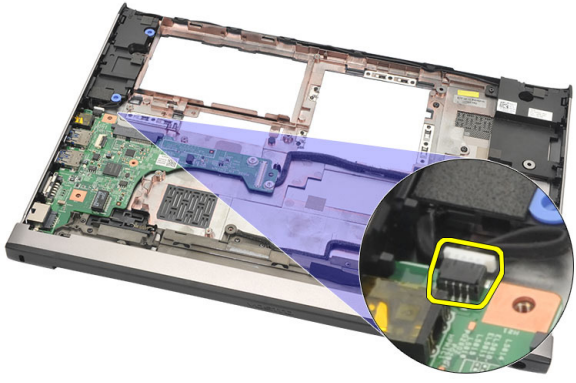
Installing The Speakers

1. Replace the speakers in their original position.
2. Thread the speaker cable into the latches to secure the speakers in place.
3. Install the *system board*.
4. Install the *display assembly*.
5. Install the *Wireless Wide Area Network (WWAN) card*.
6. Install the *Wireless Local Area Network (WLAN) card*.
7. Install the *palm rest*.
8. Install the *memory*.
9. Install the *hard drive*.
10. Install the *keyboard*.
11. Install the *base cover*.
12. Install the *Secure Digital (SD) card*.
13. Install the *Subscriber Identity Module (SIM) card*.
14. Install the *battery*.
15. Follow the procedures in *After Working Inside Your Computer*.

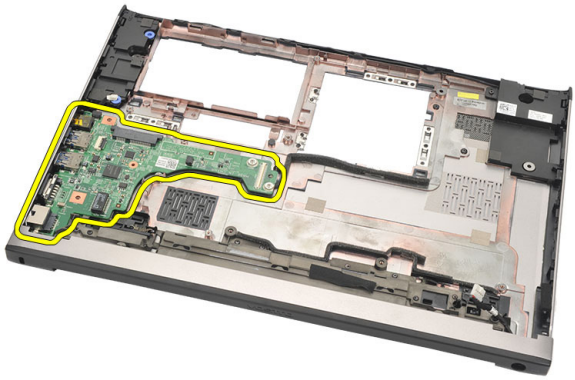
Removing The Input/Output (I/O) Board

23

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Subscriber Identity Module (SIM) card*.
4. Remove the *Secure Digital (SD) card*.
5. Remove the *base cover*.
6. Remove the *keyboard*.
7. Remove the *hard drive*.
8. Remove the *memory*.
9. Remove the *palm rest*.
10. Remove the *Wireless Local Area Network (WLAN) card*.
11. Remove the *Wireless Wide Area Network (WWAN) card*.
12. Remove the *heat sink*.
13. Remove the *display assembly*.
14. Remove the *system board*.
15. Disconnect the speaker cable from the I/O board.



16. Remove the I/O board from the chassis.



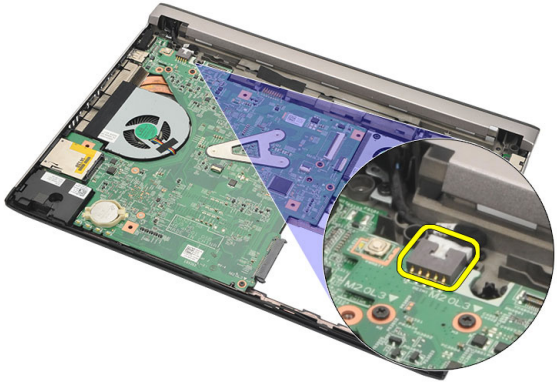
Installing The Input/Output (I/O) Board

1. Insert the I/O board into its slot.
2. Connect the speaker cable to the I/O board.
3. Install the *system board*.
4. Install the *display assembly*.
5. Install the *heat sink*.
6. Install the *Wireless Wide Area Network (WWAN) card*.
7. Install the *Wireless Local Area Network (WLAN) card*.
8. Install the *palm rest*.
9. Install the *memory*.
10. Install the *hard drive*.
11. Install the *keyboard*.
12. Install the *base cover*.
13. Install the *Secure Digital (SD) card*.
14. Install the *Subscriber Identity Module (SIM) card*.
15. Install the *battery*.
16. Follow the procedures in *After Working Inside Your Computer*.

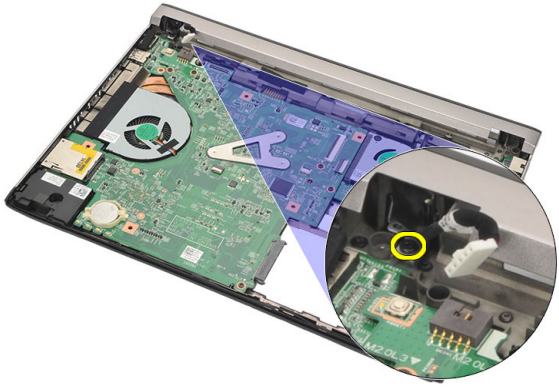
Removing the DC-In Port

24

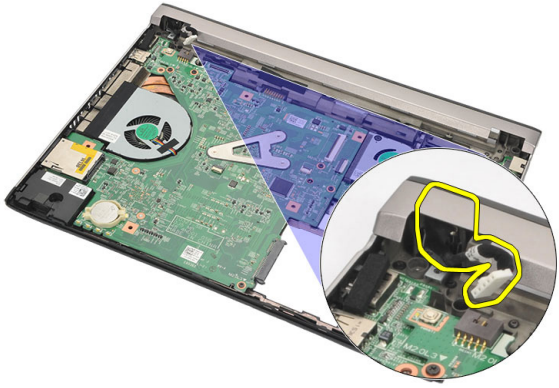
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Subscriber Identity Module (SIM) card*.
4. Remove the *Secure Digital (SD) Card*.
5. Remove the *base cover*.
6. Remove the *keyboard*.
7. Remove the *hard drive*.
8. Remove the *memory*.
9. Remove the *palm rest*.
10. Remove the *Wireless Wide Area Network (WWAN) card*.
11. Remove the *Wireless Local Area Network (WLAN) card*.
12. Remove the *display assembly*.
13. Disconnect the DC-in cable from the system board.



14. Remove the screw that secures the DC-in port.



15. Lift up and remove the DC-in port from the bottom base.



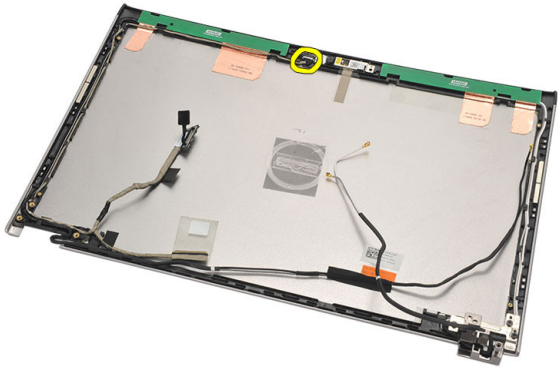
Installing The DC-In Port

1. Replace the DC-in port into its compartment.
2. Tighten the single screw to secure the DC-in port in place.
3. Connect the DC-in cable to the system board.
4. Install the *display assembly*.
5. Install the *Wireless Wide Area Network (WWAN) card* .
6. Install the *Wireless Local Area Network (WLAN) card* .
7. Install the *palm rest*.
8. Install the *memory*.
9. Install the *hard drive*.
10. Install the *keyboard*.
11. Install the *base cover*.
12. Install the *Secure Digital (SD) card*.
13. Install the *Subscriber Identity Module (SIM) card*.
14. Install the *battery*.
15. Follow the procedures in *After Working Inside Your Computer*.

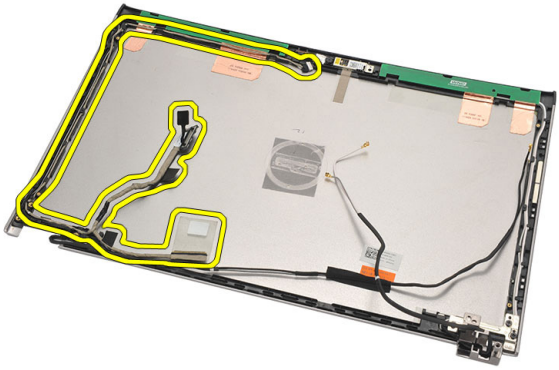
Removing The LVDS Cable

25

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *keyboard*.
5. Remove the *hard drive*.
6. Remove the *palm rest*.
7. Remove the *display panel*.
8. Remove the *display assembly*.
9. Remove the *display hinge*.
10. Disconnect the Low-Voltage Differential Signalling (LVDS) cable from the camera module.



11. Unthread the LVDS cable from its holder and remove it from the display top cover.



Installing The Low-Voltage Differential Signalling (LVDS) Cable

1. Route the LVDS cables onto its holder on the display top cover.
2. Connect the LVDS cable to the camera module.
3. Install the *display hinge*.
4. Install the *display assembly*.
5. Install the *display panel*.
6. Install the *palm rest*.
7. Install the *hard drive*.
8. Install the *keyboard*.
9. Install the *base cover*.
10. Install the *battery*.
11. Follow the procedures in *After Working Inside Your Computer*.

System Setup 26

System Setup Overview

System Setup allows you to:

- change the system configuration information after you add, change, or remove any hardware in your computer.
- set or change a user-selectable option such as the user password.
- read the current amount of memory or set the type of hard drive installed.

Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

CAUTION: Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

Entering System Setup

1. Turn on (or restart) your computer.
2. When the blue DELL logo is displayed, you must watch for the F2 prompt to appear.
3. Once the F2 prompt appears, press <F2> immediately.

NOTE: The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it to display, and then press <F2> . If you press <F2> before you are prompted, this keystroke will be lost.

4. If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then, shut down your computer and try again.

System Setup Screens

Menu — Appears on top of the System Setup window. This field provides a menu to access the System Setup options. Press < Left Arrow > and < Right Arrow > keys to navigate. As a **Menu** option is highlighted, the **Options List** lists the options that define the hardware installed on your computer.

Options List — Appears on the left side of the System Setup window. The field lists features that define the configuration of your computer, including installed hardware, power conservation, and security features. Scroll up and down the list with the up- and down-arrow keys. As an option is highlighted, the **Options Field** displays the option's current and available settings.

Options Field — Appears on the right side of **Options List** and contains information about each option listed in the **Options List**. In this field you can view information about your computer and make changes to your current settings. Press < Enter> to make changes to your current settings. Press <ESC> to return to the **Options List**.

NOTE: Not all settings listed in the Options Field are changeable.

Help — Appears on the right side of the System Setup window and contains help information about the option selected in **Options List**.

Key Functions — Appears below the **Options Field** and lists keys and their functions within the active system setup field.

Use the following keys to navigate through the System Setup screens:

Keystroke	Action
< F2 >	Displays information on any selected item in the System Setup.
< Esc >	Exit from current view or switch the current view to the **Exit**page in the System Setup.
< Up Arrow > or < Down Arrow >	Select an item to display.
< Left Arrow > or < Right Arrow >	Select a menu to display.
– or +	Change existing item value.
< Enter >	Select the sub menu or execute command.
< F9 >	Load setup default.
< F10 >	Save current configuration and exit System Setup.

System Setup Menu Options

Main

The Main tab lists out the primary hardware features of the computer. The table below defines the function of each option.

System Information	Displays the computer model number.
System Time	Re-sets the time on the computer's internal clock.
System Date	Re-sets the date on the computer's internal calendar.
BIOS Version	Displays the BIOS revision.
Product Name	Displays the product name and the model number.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer (if available).
Processor Information	
CPU Type	Displays the type of processor.
CPU Speed	Displays the speed of the processor.
CPU ID	Displays the processor ID.
L1 Cache Size	Displays the processor L1 cache size.
L2 Cache Size	Displays the processor L2 cache size.
L3 Cache Size	Displays the processor L3 cache size.
Memory Information	
Extended Memory	Displays the memory installed on the computer.
System Memory	Displays the memory in-built on the computer.
Memory Speed	Displays the memory speed.
Device Information	

Fixed HDD	Displays the model number and capacity of the hard drive.
AC Adapter Type	Displays the type of the AC adapter.

Advanced

The Advanced tab allows you to set various functions that affect the performance of the computer. The table below defines the function of each option and its default value.

Intel SpeedStep	Enable or disable the Intel SpeedStep feature.	Default: Enabled
Virtualization	Enable or disable the Intel Virtualization feature.	Default: Enabled
Integrated NIC	Enable or disable the power supply to the on–board network card.	Default: Enabled
USB Emulation	Enable or disable the USB emulation feature	Default: Enabled
USB Powershare	Enable or disable the USB powershare feature	Default: Enabled
USB Wake Support	Allows USB devices to wake-up the computer from standby. This feature is enabled only when the AC adapter is connected.	Default: Disabled
SATA Operation	Change the SATA controller mode to either ATA or AHCI.	Default: AHCI
Adapter Warnings	Enables or disables adapter warnings.	Default: Enabled
Function Key Behavior	Specifies the behavior of the function key <Fn> .	Default: Function key
Charger Behavior	Specifies if the computer battery will be charged when connected to an AC power source.	Default: Enabled

Miscellaneous Devices	These fields let you enable or disable various on-board devices like external USB ports, microphone, camera, media card reader, fingerprint reader, and boot disable (Default: Disabled).

Security

The Security tab displays the security status and allows you to manage the security features of the computer.

Set Service Tag	This field displays your system's service tag. If the service tag is not already set, this field can be used to enter it.
Set Supervisor Password	Allows you to change or delete the administrator password.
Set System Password	Allows you to set, change, or delete the system password
Set HDD Password	Allows you to set a password on the computer's internal hard drive (HDD).
Password on Boot	Enables or disables to set password on boot.
Password Bypass	Allows you to bypass the system password and the internal HDD password prompts during a system restart/resume from hibernate state.
Computrace	Enable or disable the Computrace feature on your computer.

Boot

The Boot tab allows you to change the boot sequence.

Boot Priority Order specifies the order of different devices in which the computer will boot through at start up.

Diskette Drive	Specify which diskette drive the computer can boot through.

Hard Disk Drives	Specify which hard drive the computer can boot through.
USB Storage Device	Specify which USB storage device the computer can boot through.
CD/DVD ROM Drives	Specify which CD/DVD the computer can boot through.
Network	Specify which network device the computer can boot through.

Exit

This section allows you to save, discard, and load default settings before exiting from System Setup.

Diagnostics 27

Device Status Lights

	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
	Turns on when the computer reads or writes data.
	Turns on steadily or blinks to indicate battery charge status.
	Turns on when wireless networking is enabled.

LED Status

NOTE: There are four LEDs in front of the system.

If the computer is connected to an electrical outlet, the battery light operates as follows:

LED	Front Edge Power LED (Power Source: All; Battery Charge: 0–100%)
Hibernate	Off
Standby	Breathing White
On	Solid White
LED	Front Edge Battery Charge LED (Power Source: Dell AC Adapter; Battery Charge: >= fully charge)
Hibernate	Off
Standby	Off
On	Off
LED	Front edge battery charge LED (Power Source: Dell AC adapter; Battery Charge : <=fully charge)
Hibernate	Solid White

Standby	Solid White
On	Solid White
LED	Front edge battery charge LED (Power Source: Battery; Battery Charge: <=10% charge)
Hibernate	Off
Standby	Solid Amber
On	Solid Amber
LED	Front edge battery charge LED (Power Source: Battery; Battery Charge: <=10% charge)
Hibernate	Off
Standby	Solid Amber
On	Solid Amber
LED	Hard Disk Drive (HDD) LED
Hibernate	Off
Standby	Off
On	Illumination in white when active
LED	Wireless LED
Hibernate	Off
Standby	Off
On	Solid White when wireless is ON
LED	Camera LED (Power Sources: All sources; Battery Charge: 0–100 % charge)
Hibernate	Off
Standby	Off
On	Solid White when streaming data

Diagnostic Beep Codes

The computer may emit a series of beeps during start-up if the display cannot show errors or problems. These series of beeps, called beep codes, identify

various problems. The delay between each beep is 300 ms, the delay between each set of beeps is 3 seconds, and the beep sound lasts 300 ms. After each beep and each set of beeps, the BIOS should detect if the user presses the power button. If so, BIOS will jump out from looping and execute the normal shutdown process and power system.

Code	1
Cause	BIOS ROM checksum in progress of failure
Troubleshooting Steps	System board failure, covers BIOS corruption or ROM error

Code	2
Cause	No RAM detected
Troubleshooting Steps	No memory detected

Code	3
Cause	Chipset Error (North and South Bridge Chipset, DMA/ IMR/ Timer Error) , Time-Of-Day Clock test failure , Gate A20 failure , Super I/O chip failure , Keyboard controller test failure
Troubleshooting Steps	System board Failure

Code	4
Cause	RAM Read/Write failure
Troubleshooting Steps	Memory failure

Code	5
Cause	Real-time clock power fail
Troubleshooting Steps	CMOS battery failure

Code	6
Cause	Video BIOS test failure
Troubleshooting Steps	Video card failure

Code	7

Cause	Processor failure
Troubleshooting Steps	Processor failure
Code	8
Cause	Display
Troubleshooting Steps	Display failure

Keyboard Status Lights

The lights located above the keyboard indicate the following:

LED	Description	Color	Function Default
1 Caps Lock	Turns on when Caps Lock function is enabled.	White	Disabled
2 Touchpad Disable	Turns on when Touch Pad is disabled.	Amber	Enabled

Technical Specifications 28

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information regarding the configuration of your computer, click **Start** → **Help and Support** and select the option to view information about your computer.

System Information	
Chipset	Intel HM67 Express Chipset

Processor	
Type	• Intel Celeron • Intel Core i3 series • Intel Core i5 series

Video	
Video type	integrated on system board
Data bus	integrated video
Video controller:	
Intel Celeron	Intel HD Graphics
Intel i3, and i5	Intel HD Graphics 3000

Memory	
Memory connector	two SODIMM slots
Memory capacity	2 GB, and 4 GB
Memory type	DDR3 (1333 MHz)
Minimum memory	2 GB
Maximum memory	8 GB

Audio	
Type	two-channel high definition audio

Audio	
Controller	Conexant CX20671
Stereo Conversion	24-bit (analog-to-digital and digital-to-analog)
Interface:	
Internal	high definition audio
External	microphone-in/stereo headphones combo connector
Speakers	two (2W)
Internal speaker amplifier	two (2W)
Volume controls	Software program menus, media controls, and keyboard function keys

Communications	
Network adapter	10/100/1000 Mbps Ethernet LAN
Wireless	internal wireless local area network (WLAN), Bluetooth, Mobile Broadband, and 4G Mobile Broadband wireless support

Ports and Connectors	
Audio	Audio in / one out combo jack
Video	one VGA connector, one 19 pin HDMI connector
Network adapter	one RJ–45 connector
USB	• two USB 3.0 compliant connectors • one USB 2.0 compliant connector • Power Share connector
Memory card reader	one 8-in-1 memory card reader: (SD-SD, SDHC, SDXC, MMC-MMC, MMC+, MS-MS, MS-Pro, xD Display)

Display	
Type	HD WLED TrueLife

Display	
Size	13.30 inches
Active area (X/Y)	293.42 mm x 164.97 mm
Dimensions:	
Height	188.75 mm (7.43 inches)
Width	314.10 mm (12.36 inches)
Z-Height	3.60 mm (0.14 inch)
Diagonal	337.82 mm (13.30 inches)
Maximum resolution	1366 x 768 pixels at 262 K colors
Maximum Brightness	170 nits
Refresh rate	60 Hz
Operating Angle	0° (closed) to 135°
Minimum Viewing Angles:	
Horizontal	40/40 @ CR $\geq$ 10
Vertical	15/30 @ CR $\geq$ 10
Pixel pitch	0.2148 mm x 0.2148 mm

Keyboard	
Number of keys	• United States and Canada: 86 keys • Europe and Brazil: 87 keys • Japan: 90 keys

Touchpad	
Active Area:	
X-axis	80 mm
Y-axis	40.70 mm

Battery	
Type	• 4-cell lithium ion (3.0 AHr) • 6-cell lithium ion (3.0 AHr)

Battery	
Dimensions:	
Depth:	
4-cell and 6–cell	48.64 mm (1.91 inches)
Height:	
4-cell	20.20 mm (0.80 inch)
6-cell	31.20 mm (1.23 inches)
Width:	
4-cell and 6-cell	269.30 mm (10.60 inches)
Weight:	
4-cell	240.00 g (0.53 lb)
6-cell	340.00 g (0.75 lb)
Voltage:	
4-cell	14.80 V
6-cell	11.10 V
Approximate charge time for a 4–cell and 6–cell battery with computer off	4 hours
Temperature range:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Non-operating	–40 °C to 65 °C (–40 °F to 149 °F)
Coin-cell battery	3 V CR2032 lithium ion

AC Adapter	
Type	65 W
Input voltage	100 VAC to 240 VAC
Input current (maximum)	1.50 A, 1.60 A, and 1.70 A
Input frequency	50 Hz to 60 Hz
Output power	65 W
Output current	4.43 A (maximum at 4-second pulse), 3.34 A (continuous)
Rated output voltage	19.50 VDC (+/– 1.0 VDC)

AC Adapter	
Dimensions:	
Height	29 mm (1.14 inches)
Width	46.50 mm (1.83 inches)
Depth	107 mm (4.21 inches)
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Non Operating	–40 °C to 70 °C (–40 °F to 158 °F)

Physical	
Height (with a WLED panel)	16.05 mm to 21.00 mm (0.63 inch to 0.83 inch)
Width	329.30 mm (12.96 inches)
Depth	237.65 mm (9.35 inches)
Weight (Minimum)	1.64 kg (3.62 lb)

Environmental	
Temperature range:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Storage	-40 °C to 65 °C (–40 °F to 149 °F)
Relative humidity (maximum):	
Operating	10 % to 90 % (noncondensing)
Storage	5 % to 95 % (noncondensing)
Altitude (maximum):	
Operating	-15.20 m to 3048 m (-50 ft to 10, 000 ft)
Non-Operating	-15.20 m to 10,668 m (-50 ft to 35,000 ft)
Maximum vibration:	
Operating	0.66 Grms (2 Hz-600 Hz)
Storage	1.30 Grms (2 Hz-600 Hz)
Maximum shock:	
Operating	110 G

Environmental	
Storage	160 G
Airborne contaminant level	G1 or lower as defined by ISA-S71.04–1985

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